

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

KAIFI LLC,

Plaintiff,

v.

T-MOBILE US, INC. ET AL.,

Defendants.

Civil Action No. 2:20-cv-281-JRG

**JURY TRIAL DEMANDED**

**PLAINTIFF'S SUR-REPLY TO DEFENDANTS T-MOBILE US, INC. AND T-MOBILE  
USA, INC.' REPLY IN SUPPORT OF THEIR MOTION TO DISMISS FOR  
LACK OF PATENT ELIGIBILITY UNDER 35 U.S.C. § 101**

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**I. The Challenged Claims Are Not Directed To An Abstract Idea.**

**A. The '728 patent does not claim result-based functions, but structures that have meaningful performance improvements over prior art systems**

Defendants continue to ignore claimed elements that KAIFI identified in its opposition as rendering the claims non-abstract, including “‘indoor wireless connection module,’ ‘indoor gateway,’ and ‘indoor system ID information’ that are absent from Figures 1a and 1b, and their interactions with the location register, the router, and the selection of the network path.” Opp. at 6-7. Having ignored all the specific limitations of the claims in its motion, the reply arbitrarily decides to focus on only two elements: “(i) switching ‘automatically and without interruption,’ and (ii) storing ‘indoor system ID information’ as ‘location information’ in a ‘location register.’” Dkt. 82 at 4.

Defendants’ belated attempt at an *Alice* Step One analysis still falls short because the requirement to assess the claims’ “character as a whole” cannot be satisfied by examining a subset of the claim elements. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016). In its reply, Defendants first reiterate their argument that “Switching ‘automatically and without interruption’ is an abstract result.” Compare Dkt. 82 at 4-5 with Dkt. 55 at 9-10. But a claim does not recite only a “desirable result or function” or is “devoid of any ‘specific improvement’ to achieve the result,” as Defendants argue, just because one element of the claims recites the operation of a system that has a performance benefit. *Contra* Dkt. 82 at 5. Instead, the elements of the challenged claims work *together* to bring about the advantageous result of automatic network switching without interruption. Opp. at 4-7, 12-14. Defendants assert that KAIFI only identified “[s]toring ‘indoor system ID information’ in a ‘location register’” as a novel structure. Dkt. 82 at 5-9. This is not so. But even if it were, it would still be sufficient to render the claims non-abstract. *Koninklijke KPN N.V. v. Gemalto M2M GmbH*, 942 F.3d 1143, 1148, 1150 (Fed. Cir. 2019) (inclusion of the requirement that “the varying device is further configured to *modify* the permutation *in time*” rendered the claim non-abstract) (emphasis in original).

The inventions involve multiple interrelated and interconnected components. The first

component is an “indoor gateway” with an associated “indoor connection module” that “broadcasts the indoor system ID information.” ’728 patent, claim 1, 15:25-27. A second component is a data communication terminal that can communicate with the indoor system gateway through its own indoor connection module and receive the broadcasted indoor system ID information. *Id.* at 15:16-24, 9:7-12. But it is not enough just for the data communication terminal to detect a registered indoor system ID information and change its communication mode to indoor communication mode, (*see id.* at 15:19-22); the system must be able to adapt to packets being routed through the indoor gateway. *See also id.* at 10:5-16, 11:25-33, 11:34-50, 13:8-15, 13:41-54, 14:8-17, 14:26-37.

The system is informed of the terminal’s location update via the information stored in the location register (the third recited component), which receives “through the indoor network or outdoor wireless internet network” the location information of the terminal. *Id.* at 15:35-36, 15:31-34, 10:5-16, 11:25-33, 11:34-50, 13:8-15, 13:41-54, 14:8-17, 14:26-37. Once the system (specifically, the fourth recited component, a router alone or in combination with other equipment such as the user device) determines that the terminal has moved from outdoors to indoors based on the updated location information, the traffic can then be routed through the indoor gateway associated with the indoor system ID information, resulting in automatic switching to the indoor network via the indoor gateway. With this correct routing and the terminal in the associated communication mode, service is provided without interruption. *Id.* at 15:37-40; *see also id.* at 9:16-20 (location area stored for outdoor network and indoor system ID information for indoor network), 10:5-13 (updating location register after receiving a registered system ID information), 10:44-56 (location register controls the path of incoming messages and allows continuous communication as user moves indoors), 11:48-50 & 11:56-12:5 (updated location information permitted continuous data communication as user moves indoors).

Conversely, if no registered indoor system ID information is received, the terminal uses the absence of such information as an indication that it should continue the communication with the

outdoor network because of the unavailability or undesirability of the indoor network. *Id.* at 15:22-24; 9:38-53 & 11:21-33 (device set in an outdoor communication mode if no indoor system ID information is received and registers its location information via the outdoor network), 13:52-54 & 14:25-37 (after no longer receiving indoor system ID information, terminal updating the location information in register and switching to the outdoor communication mode). The location information received by the location register through the outdoor network reflects the availability of the outdoor network and the unavailability of the indoor network; so the system determines this fact and routes the information through the outdoor network. *Id.* at 15:31-40; *see also id.* at 13:45-65 (updated location information permitted continuous voice communication as a user moves outdoors), 14:26-37 (updated location information permitted continuous data communication as a user moves outdoors).

The dependent claims and the method claims provide even more details on the specific implementations. For example, claim 2 limits the use of indoor network to “whether the received indoor system ID information is equal to the stored indoor system ID information.” *Id.* at 15:41-48. Claim 4 provides that “the data communication terminal informs the location register that the terminal is located indoors by registering its location into the location register using a mobile IP if the registered indoor system ID information is received.” *Id.* at 15:54-58. In contrast, the outdoor location is registered “by storing location area information in the location register if the registered indoor system ID information is not received.” *Id.* at 15:58-62. Likewise, claim 12 details the steps taken to determine when the system should be switched from outdoor to indoor network via the indoor gateway, and when the traffic should be directed away from the indoor gateway to outdoor wireless internet network. *Id.*, 16:28-17:2.

## **B. Defendants misunderstood or mischaracterized the technological improvement**

Defendants make several straw man arguments. Defendants first creatively edit a single sentence from several pages from KAIFI’s description of the inventions to claim that KAIFI

characterized the improvement as brought by “updating the location information in the location register with indoor system ID information . . . and directing the traffic accordingly.” Dkt. 82 at 6 (citing Opp. at 6). Defendants ignore KAIFI’s pages of descriptions on *how* the ’728 patent’s “particularized and interrelated combination of components” operate *together* to bring out the desired result of providing automatic switching between indoor and outdoor networks without interruption. *See* Opp. at 3-7.

Based on its mischaracterization, Defendants then argue that “[t]he patent never states, or even suggests, that storing ‘indoor system ID information’ in a ‘location register’ was a challenge in the prior art or a critical advance brought about by the patent.” Dkt. 82 at 6. First, this is an incorrect characterization. The patent repeatedly discusses the importance of storing and then accessing location register information. *E.g.*, ’728 at 9:16-20, 10:5-13, 10:44-66, 11:48-50, 11:56-12:5, 13:45-65, 14:25-36. Second, whether storing of a system ID information is known in the art is irrelevant. What is relevant is that the storage and accessing of this information as part of the claimed system enables automatic network switching without interruption by allowing the system to make informed decisions based on indoor and outdoor network availability and quality. ’728 patent, 3:9-22, 3:48-51, 7:66-8:6, 9:16-20. As explained in the Opposition, the inventive system achieves this goal by examining the received indoor system ID information, determining based on that information whether the indoor network should be used, and then updating the location register accordingly. Opp. at 4-5, 12-13. How to reliably determine the terminal location and inform the network of this information is a non-abstract improvement. *Id.* As KAIFI explained and the Federal Circuit has found, conventional components can be directed to a specific improvement if it is applied to a new application or used in a new way. *See BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1349-50 (Fed. Cir. 2016) (“an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces”); *Uniloc USA, Inc. v. LG Electronics USA*, 957 F.3d 1303, 1307-09 (Fed.

Cir. 2020) (claims were subject matter eligible even though conventional components were used for “performing additional polling using inquiry messages” because the claims are directed to “to a specific asserted improvement [reduced latency] to the functionality of the communication system itself”).

Defendants next argue that storing the location information in the location register has nothing to do with providing switching between indoor and outdoor networks “automatically and without interruption.” Dkt. 82 at 6-7. But as explained above, and as KAIFI repeatedly explained in the Opposition, the claims must be treated as a whole and updating location information is but one of the components of the invention. Further, as Defendants now acknowledge, “storing ‘location information’ in the ‘location register’ . . . enables ‘determin[ing] the location of the data communication terminal,” and based, at least in part, on that determination, the system further decides whether indoor or outdoor network should be used and whether the traffic should be routed through the indoor gateway. ’728 patent, 15:35-40, 15:53-62, 16:28-17:3. As an example, by differentiating between indoor system ID information and location area information, the network determines whether to direct the traffic through an indoor gateway or not and that rerouting (coupled with the terminal’s communication mode switching) effects automatic switching without interruption. *Id.* As the specification explains:

The location register 80 controls a path of the incoming messages of voice data transmitted to the internet 50. That is, if it is determined that the user’s location stored in the location register 80 has been changed from outdoors to indoors, the router connected with the location register transfers the voice data or incoming messages of the recipient to the indoor gateway 100 without passing them through the outdoor wireless LAN network.

Then the indoor gateway 100 allows a voice call between the user and the recipient to be continuously made by transferring the voice data of the recipient to the user’s PDA 10 through the [indoor wireless module] (Step 17). ’728 patent, 10:44-56.

Thus, contrary to Defendants’ assertion, the specification expressly links the location information stored in the location register with the automatic network switching without service interruption. *See also id.* 9:16-20, 10:5-13, 11:48-50, 11:56-12:5, 13:45-65, 14:25-36. Therefore, like the cases cited by



KAIFI, where “the patent tied the . . . technological improvement explicitly and clearly to implementation details recited in the claims,” the ’728 patent’s claims are subject matter eligible. *See* Dkt. 82 at 7 n.2.

**C. Defendants’ cases are distinguishable.**

Because the patent directly links the technological improvement and the claim elements, Defendants’ cases once again miss the point. *Voip-Pal.com, Inc. v. Apple, Inc.*, 411 F. Supp. 3d 926 (N.D. Cal. 2019), for example, involved claims that Judge Koh characterized as “bereft of the critical ‘how it does it’ aspect of the invention.” *Id.* at 955. For example, Judge Koh found that the step of “classifying the communication, based on the new second participant identifier, as a system communication or an external network communication,” “contains no further detail as to how the classification is accomplished—for instance, which criteria matter, and how those criteria are applied.” *Id.* at 954. In contrast, the ’728 patent provides that critical information. For example, it makes clear that on the terminal side, the terminal decides whether to use indoor or outdoor networks based on, among other things, whether registered indoor system ID information broadcasted by the indoor gateway is received. ’728, 15:17-30. The terminal then updates the location information in the network’s location register and based on the updated location information, the network can then correctly decide whether the traffic should go through the indoor gateway or not. *Id.*, 15:31-40, 16:35-17:3. The traffic directed through the indoor gateway is then passed to the terminal via the indoor wireless modules embedded in the indoor gateway and the terminal. *Id.*, 15:25-29, 16:55-60 (5<sup>th</sup> step).

As to the technological improvement in *Voip-Pal*, Judge Koh refused to accept three of the four pled technological improvements because they were respectively “refuted by the claim and specification,” “not disclosed by . . . Claim 1” and not “recite[d]” by the claim. *Voip-Pal*, 411 F. Supp. 3d at 961-63. As to the remaining “User-specific handling,” the Court “accept[ed] that overcoming this problem would constitute a meaningful improvement in call routing technology,” but found that

the claim ultimately failed because it did “not disclose *how* to achieve the alleged improvement.” *Id.* at 960. Here, the improvements of KAIFI’s inventions are recited in the claims and described in the specification. Opp. at 10-11 (explaining where the benefits appear in the claim and specification).<sup>1</sup> The claims are drafted with sufficient specificity to explain “*how* it does it.” See pp. 1-3 *supra*; Opp. at 12-14. The ’728 claims therefore differ from *Voip-Pal*.

*Silver State Intellectual Techs. v. Facebook Inc.*, 314 F. Supp. 3d 1041 (N.D. Cal. 2018) similarly misses the mark. *Silver State* involved claims directed to what the Court characterized as “storing and selectively sharing location-based information” with requesters on a white list. *Id.* at 1047.<sup>2</sup> The decision did not discuss what the technology improvement was or how the claims recited specific implementation of the improvement, before concluding that “these [the claim elements] are undisputedly well-known functions that humans have traditionally performed for decades” and the “claims are directed to an abstract idea.” *Id.*

Here, Defendants offer no evidence that, human beings could perform the functions recited by the challenged claims. Defendants, for example, do not explain how humans can: (1) detect electronic signals carrying indoor system ID information broadcasted by the indoor gateway, (2) switch a terminal’s communication mode accordingly based on that captured information, (3) update its location information in the location register, or (4) direct the network to check the updated location

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<sup>1</sup> As explained in the Opposition, Federal circuit case law does not require that the technological benefit itself be recited in the claims. Opp. at 12. And the Court’s construction of “provides roaming of voice/data signals provided to the user” requires switching of the network path of the voice/data communications be provided “automatically and without interruption.” *KAIFI LLC v. AT&T Corp.*, 2:19-cv-00138-JRG, Dkt. 104 at 10 (E.D. Tex. Apr. 17, 2020).

<sup>2</sup> For example, one claim recited steps of allocating a user-specific space in memory accessible to a specific user, associating a terminal with the user, determining the location of the user location via the terminal location and storing that location information about the user, receiving additional location-related information from the user and storing that information, receiving a list of possible requesters of the location and additional location data, storing that list of possible requesters and then providing location and additional location data about the user to the white-listed requesters. *Silver State*, 314 F. Supp. 3d at 1046-47.

information in the location register and to change the routing of the voice and data communication accordingly—all at a sufficient speed to provide switching automatically and without interruption of the voice and data communication. Unlike in *Silver State*, the provision of “roaming” service with automatic switching without service interruption removes it far outside of human capability.<sup>3</sup>

The reply again cites *Customedia Techs., LLC v. Dish Network Corp.*, 951 F.3d 1359 (Fed. Cir. 2020). Dkt. 82 at 8-9. As explained in the Opposition, the case is not on point because the *Customedia* claims at most focused on “delivering targeted advertising using a computer only as a tool.” 951 F.3d at 1363. Defendants do not dispute KAIFI’s interpretation of the case. Dkt. 82 at 8-9.

In essence, Defendants are arguing that the claims are abstract because the components are allegedly conventional. See Dkt. 82 at 1 (first paragraph). As KAIFI noted in its Opposition, the Federal Circuit has rejected such arguments that compatibility with conventional systems renders a claim abstract:

The claimed invention’s compatibility with conventional communication systems does not render it abstract. Nor does the fact that the improvement is not defined by reference to “physical” components. *Enfish*, 822 F.3d at 1339. “To hold otherwise risks resurrecting a bright-line machine-or-transformation test, or creating a categorical ban on software patents.” *Id.* (citations omitted). Our precedent is clear that software can make patent-eligible improvements to computer technology, and related claims are eligible as long as they are directed to non-abstract improvements to the functionality of a computer or network platform itself.

*Uniloc*, 957 F.3d at 1309 (cited on Opp. a15); see also *Huawei Techs. Co. Ltd. v. Samsung Elecs. Co., Ltd.*, 3:16-cv-02787-WHO, 2016 WL 6834614, \*9 (N.D. Cal. Nov. 21, 2016) (conventional decoder with new algorithm are unconventional).

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<sup>3</sup> Defendants argue claim 12 does not require automatic switching without interruption because it does not recite “providing roaming of voice/data communication.” Dkt. 82 at 1 n.1. But claim 12 makes clear that claim’s intended use is an “internet network connecting and roaming method.” ’728 patent, 16:17. This intention and the specification’s disclosures make clear what technological improvement the method claims are seeking and the remaining claims provide the details on the specific implementation.

## II. There is Substantial Evidence That The '728 Patent Involves An Inventive Concept

Defendants assert that because they have allegedly made a *prima facie* case that an inventive concept is absent, the burden of production shifts to KAIFI to show otherwise. Dkt. 82 at 9. This is lawyer fiction. Defendants have introduced no admissible evidence that many of the elements were “well-understood,” “routine” or “conventional.” As one example, Defendants still have not produced a single example of a prior system that could “provide[] switching . . . automatically and without interruption.” Dkt. 55 at 13, 15-16, 18; Dkt. 82 at 9-10. Other examples of the failure are discussed in Opposition, pages 21-22.

But even if Defendants did meet their burden to make a *prima facie* case that an inventive concept is absent, KAIFI has produced ample contrary evidence in the form of Dr. Kelley’s expert report. Hundreds of pages of Dr. Kelley’s report reflect that the prior art was missing a number of critical elements of the claims, including a failure to “provide[] switching . . . automatically and without interruption.” Opp. Ex. 1, pages 109-383 (cited on Opp. 23). Dr. Kelley also explained the significant performance benefits the inventions brought to telecommunication network infrastructure and the significant technical problem that the invention solved in prior art telecommunications systems. *See id.*, ¶¶ 1027-1046, 1050-1060. Defendants do not dispute Dr. Kelley’s analysis or explain why his conclusions are incorrect. Dkt. 82 at 9-10. Even if they did, a reasonable jury could certainly find, based on Dr. Kelley’s testimony, that the inventions are unconventional, not routine, and represent an inventive concept because the claimed system and methodology are not obvious and bring unexpected performance improvement. Additionally, as noted above, assigning new algorithms to “conventional” algorithm renders them unconventional. *Huawei*, 2016 WL 6834614 at \*9.

Defendants complain that the Opposition did not address 10 of its cases in the opening brief. Dkt. 82 at 7 n.3. These cases have no relevance to the factual question in Step 2, which is the state of the art of the '728 patent. As the Federal Circuit has noted, “[w]hether something is well-understood,

routine, and conventional to a skilled artisan at the time of the patent is a factual determination.”

*Berkheimer v. HP Inc.*, 881 F.3d 1360, 1369 (Fed. Cir. 2018). Defendants have not even provided any analysis on the skill level or a comparison of technologies between the ’728 patent and the extrinsic patents referenced in the ten opinions. In fact, the only prior art Defendants cited in their motion is U.S. Pat. No. 6,600,924, and Defendants have no answer to KAIFI’s explanation that that piece of art “goes in the exact opposite direction of the teaching of the ’728 patent.” Opp. at 7.

Defendants lastly argue that the claims fail *Alice* Step Two for the same reason that they fail Step One because the claims are supposedly “results-oriented functions.” Dkt. 82 at 10. But “[t]he improvements in the specification, to the extent they are captured in the claims, create a factual dispute regarding whether the invention describes well-understood, routine, and conventional activities.”

*Berkheimer*, 881 F.3d at 1369 (finding there is a genuine issue of material dispute whether the redundancy and efficiency claimed by dependent claims are subject matter eligible given the patent’s description of improvement over prior art systems). Here, as KAIFI has explained at length above and in the Opposition, the patent describes improvements in terms of “improved” “voice quality and the data processing speed of the internet communications” and the ability for a user to “safely make a call by automatically providing the roaming service for changing a communication path” as users moves indoors from outdoors and vice versa. ’728 at 14:56-67. As KAIFI has also explained, these improvements and the means for effecting these improvements are captured by the claims.

### III. CONCLUSION

The Court should deny Defendants’ motion to dismiss pursuant to section 101 for the ’728 patent.

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Respectfully submitted,

/s/ Robert Christopher Bunt

Enoch H. Liang  
Cal. Bar No. 212324 (admitted in E.D. Texas)  
Michael J. Song  
Cal. Bar No. 243675 (admitted in E.D. Texas)  
LTL ATTORNEYS LLP  
300 S. Grand Ave., 14th Fl.  
Los Angeles, California 90071  
Telephone: (213) 612-8900  
Facsimile: (213) 612-3773  
Email: enoch.liang@lzlattorneys.com  
Email: michael.song@lzlattorneys.com

Jason Sheasby  
Cal. Bar No. 205455 (admitted PHV)  
IRELL & MANELLA, LLP  
1800 Avenue of the Stars, Suite 900  
Los Angeles, CA 90067  
Telephone: (310) 277-1010  
Facsimile: (310) 203-7199  
Email: jsheasby@irell.com

Robert Christopher Bunt  
Texas Bar No. 00787165  
PARKER, BUNT & AINSWORTH PC  
100 E. Ferguson St., Suite 418  
Tyler, Texas 75702  
Telephone: (903) 531-3535  
Email: rcbunt@pbatyler.com

*Attorneys for Plaintiff KAIFI LLC*

**CERTIFICATE OF SERVICE**

The undersigned certifies that the foregoing document was served via electronic mail on all counsel of record on January 22, 2021.

/s/ Robert Christopher Bunt  
ROBERT CHRISTOPHER BUNT